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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/655,582	09/05/2003	Keiji Kashima	123772	7331
25944	7590	08/23/2005	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			QI, ZHI QIANG	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/655,582

Applicant(s)

KASHIMA, KEIJI

Examiner

Mike Qi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 3-5, 7-11, 14-37 and 44-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 6, 12, 13 and 38-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/13/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's election with traverse of June 30, 2005 is acknowledged. The traversal is on the ground(s) that Applicant request withdrawal of the Restriction requirement. This is not found persuasive because the claims contained product claims and process claims and the product can be made by another and materially different process, and the product such as the laminated retardation optical element and the process of producing a laminated retardation optical elements contain different embodiments as shown in the different figures, and that would need further different searches, and the serious burden exists.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 3-5, 7-11, 14-37, 44-50 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected claims, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on June 30, 2005.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitation such as "an angle between an axis of phase advance of the additional $\lambda/4$ retardation layer and that of the $\lambda/4$ retardation layer contained in the laminated retardation optical element is substantially equal to 90 degrees" in claim 42 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,646,701 B2 (Lyu et al) in view of US 5,504,603 (Winker et al) and US 5,403,510 (Kajiyama et al).

Regarding claim 1, Lyu discloses (col.7, line 38 – col.8, line 8; Fig.14) that A-plate compensation film (21) and C-plate compensation film (31). When the liquid crystal display device assembly together, the A-plate (21) and the C-plate (31) would be laminated together to form a laminated retardation optical element, and the C-plate (31) is optically bonded to a surface of the A-plate (21).

Lyu does not explicitly discloses that the C-plate acts as a negative C-plate, and the A-plate and the C-plate using cross-linked liquid crystal such as a cross-linked nematic liquid crystal, and a cross-linked chiral nematic or discotic liquid crystal.

Winker discloses (col.9, lines 36-40) that using negative C-plate increases the contrast ratio at large fields of view.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the compensation films of Lyu with the teachings of negative C-plate as taught by Winker for achieving a high contrast ratio at large fields of view (see col.9, lines 36-40), since using C-plate compensation significantly reduce the light leakage (see col.6, lines 40-52).

Lyu and Winker lack that using cross-linked liquid crystal as material for the A-plate and the C-plate.

Kajiyama discloses (col.4, lines 19 – 44) that using the cross-linked reaction, the opaque degree of the composite film is high at the opaque state. Kajiyama further

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teaches (col.5, lines 7-31) that the cross-linked material having a high dielectric constant and easily disperse an applied voltage so that the device uniformly display image over all the surface of the device.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the compensation films of Lyu and Winker with the teachings of cross-linked material as taught by Kajiyama for achieving uniformly display image over all the surface of the device, since cross-linked polymer for a material of the A-plate and the C-plate would easily disperse an applied voltage (see col.5, lines 7-31).

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lyu, Winker and Kajiyama as applied to claim 1 above, and further in view of US 2004/0095532 A1 (Parri et al).

Regarding claim 2, Lyu, Winker and Kajiyama teach the invention set forth above. Lyu, Winker and Kajiyama lack that the A-plate is a $\lambda/4$ retardation layer.

Parri discloses (paragraph 0054) that A-plate being used as a QWE (quarter wave film, i.e., $\lambda/4$ retardation layer) would improve off-axis luminance and color shift.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the compensation films of Lyu, Winker and Kajiyama with the teachings of $\lambda/4$ retardation layer as A-plate as taught by Parri for improving the display brightness, since the A-plate used as a quarter wave film would improve off-axis luminance and color shift (see paragraph 0054).

7. Claims 6 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lyu, Winker and Kajiyama as applied to claim 1 above, and further in view of US 2004/0051831 A1 (Su Yu et al).

Regarding claim 6, Lyu, Winker and Kajiyama teach the invention set forth above. Lyu, Winker and Kajiyama lack that the C-plate retardation layer has a thickness of 5 μm or less.

Su Yu discloses (paragraph 0058) that the thickness of the negative retardation film is 1–4 μm , preferably 2-3 μm , i.e., less than 5 μm . Su Yu further teaches (paragraph 0062) that reducing the thickness of the films, the birefringence would easily be controlled.

In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. (see MPEP. 2144.05 I.)

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the compensation film of Lyu, Winker and Kajiyama with the teachings of the thickness of the negative retardation film as taught by SuYu for achieving easily controllable the birefringence, since reducing the thickness of the optical films would easily control the brightness (see paragraph 0062).

Regarding claims 12-13, Lyu, Winker and Kajiyama teach the invention set forth above. Lyu, Winker and Kajiyama lack that using same material to bound the adjacent retardation layer, and the difference between the mean refractive indices is 0.05 or less.

However, to bound the two retardation layers adjacent to each other using substantially same material would simplify the manufacturing process, and that would

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have been at least obvious. Since using same material for the retardation layers, such that the mean refractive indices would be close to each other. As a general available knowledge, the same material, the difference between the mean refractive indices would be small. Therefore, the difference of the mean refractive indices is 0.05 or less would have been at least obvious.

8. Claims 38-40 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lyu, Winker, Kajiyama and Parri as applied to claims 1 and 2 above.

Regarding claim 38, Lyu further discloses (col.1, lines 11-13; col. 7, line 38- col.8, line 8; Fig.14) that a vertical alignment (VA) mode liquid crystal cell comprising a pair of polarizers (10, 11) between which the liquid crystal cell (50) is sandwiched, and the compensation films (A-plate 21, C-plate 31) (when assembly the device, the A-plate 21 and the C-plate 31 would be laminated as the laminated retardation layer) placed between the liquid crystal cell (50) and polarizer (10); and the C-plate is situated on a side close to the liquid crystal cell (50). The claim 38 contains using the retardation layer of the claim 2, that limitation would be met in the claim 2, i.e., the A-plate is a $\lambda/4$ retardation layer.

Regarding claim 39, Lyu further discloses (col. 7, line 38- col.8, line 8; Fig.14) that an additional A-plate (20) placed on the liquid crystal cell (500 on a side opposite to the compensation films (A-plate 21, C-plate 31) (when assembly the device, the A-plate 21 and the C-plate 31 would be laminated as the laminated retardation layer). As the explanation above, the A-plate is a $\lambda/4$ retardation layer that is already met in the claim 2.

Regarding claim 40, Lyu further discloses (col. 7, line 38- col.8, line 8; Fig.14) that an additional polarization layer (11) placed on the additional A-plate (20) (using $\lambda/4$ retardation) on a side of opposite to the liquid crystal cell (50), and the function would be the light passing through the additional $\lambda/4$ retardation layer (A-plate 20) and controlling the state of polarization of light.

Regarding claim 43, Lyu further discloses (col.4, line 45- col.5, line 4; Figs.1B and 2) that the liquid crystal layer (100) is sealed by sealant (200), and the liquid crystal molecules (3) sealed in the liquid crystal cell are twisted that would be inclined in two or more different directions when an electric field is applied.

9. Claims 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lyu, Winker, Kajiyama and Parri as applied to claims 1-2, 38-40 and 43 above, and further in view of US 2005/0151896 A1 (Hara et al).

Regarding claims 41-42, Lyu, Winker, Kajiyama and Parri teach the invention set forth above. Lyu, Winker, Kajiyama and Parri lack that an angle between an axis of phase advance of the additional $\lambda/4$ retardation layer and an axis of transmission of the additional polarization layer is 45 ± 2 degree, and an angle between an axis of phase advance of the additional $\lambda/4$ retardation layer and the laminated retardation optical element is substantially equal to 90 degree.

Hara discloses (paragraph 0122; Fig.5) that the angle formed by the polarization axis of the polarizer and the axis of the quarter wavelength plate in the set 1 and set 2 should be 45 degree and -45 degree theoretically in an ideal system (the angle between the axis of the two quarter wavelength plate 407 and 405 would be substantially

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equal to 90 degree as shown in Fig.5), and the angle is adjusted to a limited range of ± 5 degree (that means less than ± 5 degree, and that is close to the ± 2 degree), and that would solve the coloration problem so as to optimize the entire system (see paragraph 0122).

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the compensation films of Lyu, Winker, Kajiyama and Parri with the teaching of the angle set for the polarizer, retardation as taught by Hara for solving the coloration problem so as to optimize the entire system (see paragraph 0122), since the ordinary skilled in the art would based on the teaching of Hara to determine the proper angles in order to optimize the entire system.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (571) 272-2299.

The examiner can normally be reached on M-T 8:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Qi
Patent Examiner



ROBERT KIM
SUPERVISORY PATENT EXAMINER